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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P21026PCAU	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
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International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ B29C 63/12, 63/08, E02B 3/12, 5/02		
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1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of 3 sheets, including this cover sheet. <div style="border: 1px solid black; display: inline-block; padding: 2px; margin: 5px 0;">X</div> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). <div style="margin-left: 40px;">These annexes consist of a total of 13 sheet(s).</div>
3.	This report contains indications relating to the following items: <div style="margin-left: 20px;"> I <div style="border: 1px solid black; display: inline-block; padding: 2px; margin-right: 5px;">X</div> Basis of the report II <div style="border: 1px solid black; display: inline-block; width: 15px; height: 15px; margin-right: 5px;"></div> Priority III <div style="border: 1px solid black; display: inline-block; width: 15px; height: 15px; margin-right: 5px;"></div> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <div style="border: 1px solid black; display: inline-block; width: 15px; height: 15px; margin-right: 5px;"></div> Lack of unity of invention V <div style="border: 1px solid black; display: inline-block; padding: 2px; margin-right: 5px;">X</div> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <div style="border: 1px solid black; display: inline-block; width: 15px; height: 15px; margin-right: 5px;"></div> Certain documents cited VII <div style="border: 1px solid black; display: inline-block; width: 15px; height: 15px; margin-right: 5px;"></div> Certain defects in the international application VIII <div style="border: 1px solid black; display: inline-block; width: 15px; height: 15px; margin-right: 5px;"></div> Certain observations on the international application </div>

Date of submission of the demand 13 August 2003	Date of completion of the report 26 May 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer M.R. OLLEY Telephone No. (02) 6283 2143

I. Basis of the report**1. With regard to the elements of the international application:***

- ☐ the international application as originally filed.
- ☒ the description, pages 1, 5-10 as originally filed,
Pages , filed with the demand,
Pages 2-4a, received on 7 April 2004 with the letter of 6 April 2004
- ☒ the claims, pages , as originally filed,
Pages , as amended (together with any statement) under Article 19,
Pages , filed with the demand,
Pages 11-19, received on 7 April 2004 with the letter of 6 April 2004
- ☒ the drawings, pages 1/4 -4/4, as originally filed,
Pages , filed with the demand,
Pages , received on with the letter of
- ☐ the sequence listing part of the description:
Pages , as originally filed
Pages , filed with the demand
Pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-67	YES
	Claims	NO
Inventive step (IS)	Claims 1-67	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-67	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

D1 WO199504646 (BRANDENBURGER ISOLIERTECHNIK GMBH & CO)

D2 Derwent Abstract Accession No. 88-100791, Class A32, JP63049419 (SEKISUI CHEM IND KK)

D3 WO199317857 (N.V. RAYCHEM S.A.)

D4 US4955759 (PAYNE)

Documents D1 and D2 are the closest art to the applicants claimed invention, but they do not disclose plastics film webs that are at least partially adhered to each other and they also do not disclose a take off mechanism which moves the laminated material from the frame means. Therefore claims 1 to 67 are novel and have an inventive step.

sheeting, tubing or net like materials for various applications with a minimum of or no joining of separate sections by welding or gluing. Preferably, but not exclusively, the method may be aimed at producing liners for land fill sites, water retaining applications and for water distributing applications. The present invention also aims to provide apparatus for carrying out the method of the invention as well as various product applications for the materials produced by the methods and apparatus of this invention.

According to a first aspect of the present invention, apparatus is provided for making laminated material either perforated or not perforated from web material, said apparatus including frame means having a laminated material take off mechanism associated therewith, and web material wrapping means for wrapping at least one web material around the laminated material take off mechanism of said frame means to form said laminated material as said take off mechanism progressively removes said laminated material from the frame means. The term "web material" above is intended to include elongate sheet, filament or other thread like material and preferably includes plastic film material. The apparatus thus described enables tubes or sheet material whether continuous or in a net or mesh like form to be produced of theoretically any desired length by an easy and inexpensive method. Moreover, the width of the material produced can also theoretically be increased to any desired width. If desired the tubular material produced may be cut longitudinally so that it can be used as a single thickness sheet. It may also be used as a double thickness, or alternatively it may be used in tubular form. When used as a liner, water may be permitted to flow through the tubular structure or alternatively over the liner. Moreover, if the tubing or sheeting is produced in situ, water may be used to hold the liner in its end desired position.

Preferred features of this aspect of the invention may be as defined in claims 2 to 32 annexed hereto, the subject matter of which is hereby made part of the disclosure of this specification.

In accordance with a further aspect of this invention, a method of making laminated material from web material is provided including wrapping at least one web material about a frame means to form said laminated material by overlaying the web material on previously applied said web material while simultaneously

moving the laminated material on said frame means towards a charge zone from said frame means.

Preferred features of this aspect of the invention may be as defined in claims 34 to 44 annexed hereto, the subject matter of which is hereby made part
5 of the disclosure of this specification.

In accordance with a still further aspect of this invention, a method of lining a canal or the like is provided, the method including making a tubular liner material formed by spirally wound layers of at least one plastic film web with said layers adhered to one another, and laying said liner material along said canal. In
10 the foregoing and hereinafter, the term canal is intended to include any earth formed or otherwise porous ditch, gutter or the like intended to convey water such as irrigation ditches.

Preferred features of this aspect of the invention may be as defined in claims 46 to 49 annexed hereto, the subject matter of which is hereby made part
15 of the disclosure of this specification.

In accordance with a still further aspect of this invention, there is provided a method of lining an earth formed water retaining means including making tubular liner material formed by spirally wound layers of at least one plastic film web with said layers adhered to one another, and laying said liner material in said
20 retaining means. Preferably the tubular lining material is cut to form a single sheet prior to being laid in said retaining means.

In another aspect of this invention a net or mesh material is formed from a plurality of longitudinally disposed and laterally spaced webs interconnected by at least one spirally wound web formed into longitudinally spaced windings
25 transversely disposed to said longitudinally disposed webs. Preferably a tubular form of the net or mesh material may be cut longitudinally to form at least one flat sheet of said net or mesh material.

In yet another aspect, a dam, pond or canal liner is provided formed by a liner material being spirally wound in overlapping layers of at least one plastic film
30 web with said layers being adhered to one another. Conveniently, further preferred features of this aspect may be as defined in claims 55 to 58 annexed hereto, which claims are hereby incorporated in the disclosure of this specification.

A still further aspect of this invention provides a laminated material formed by at least one first film web extending in a first direction and at least one second film web spirally wound in a plurality of windings transversely crossing said at least one first film web. With each said film web being at least partially adhered to another of said film webs to form said laminated material. Preferred features of this aspect may be as defined in claims 62 to 65 annexed hereto, which claims are hereby made part of the disclosure of this specification.

In a still further aspect, the present invention provides a laminated film material formed from at least one plastic material web wound in overlapping spiral layers with said layers being adhered to one another to form a tubular structure, the thus formed tubular structure being cut longitudinally to form at least one flat sheet. Such a laminated material may have many applications including acting as a cover for building site applications, for pools or for silage pits. When acting as a cover the material may include at least one internal pocket adapted to receive a flowable material, for example water, to act as a weight. In an alternative preferred arrangement the initially formed tubular structure of the laminated material may be cut transversely with the transverse open ends being transversely sealed to define an internal closed cavity. Means to introduce or remove a flowable material (for example water), such as a spout with a closure cap, may be provided so that the internal cavity may be at least partially filled with the flowable material to act as a weight. Any desired division of the internal cavity may be made to provide a variety of space configurations that could act as weighted zones for the cover arrangement. Possible uses for such a cover arrangement might include swimming pool covers and covers for silage pits and the like.

Further preferred aspects of this invention will become apparent from the following description given in relation to the accompanying drawings, in which:

Fig 1 is a schematic perspective view of one preferred embodiment of this invention;

Fig 2 is a schematic perspective view of a further preferred embodiment of this invention;

Fig 3 is a schematic view similar to Fig 2 and showing a still further preferred embodiment for making net or mesh material;

CLAIMS:REPLACED BY
ART 34 AMDT

1. Apparatus for making laminated material either perforated or not perforated from web material, said apparatus including frame means having a laminated material take off mechanism associated therewith, and web material wrapping means for wrapping at least one web material around the laminated material take off mechanism of said frame means to form said laminated material as said take off mechanism progressively removes said laminated material from the frame means.
2. Apparatus according to claim 1 wherein at least one said material web is a plastic film web.
3. Apparatus according to claim 1 or claim 2 wherein said web material wrapping means moves about said laminated material take off mechanism while wrapping said at least one web material around said laminated material take off mechanism.
4. Apparatus according to claim 1 or claim 2 wherein said web material wrapping means remains in a stationary position and at least said laminated material take off means of said frame means rotates while wrapping said at least one plastic film web there around.
5. Apparatus according to any one of claims 1 to 4 wherein said take off mechanism is disposed so as to remove said laminated material from the frame means in a horizontal direction.
6. Apparatus according to any one of claims 1 to 4 wherein said take off mechanism is disposed so as to remove said laminated material from the frame means in an upright direction.
7. Apparatus according to claim 6 wherein the laminated material is removed from said frame means in either a downwards direction or an upwards direction.

8. Apparatus according to any one of claims 1 to 7 wherein said apparatus is fixed in one position.
9. Apparatus according to any one of claims 1 to 7 wherein said apparatus includes movement means and drive means to drive said movement means whereby said apparatus can be moved in a desired direction while forming said laminated material.
10. Apparatus according to any one of claims 1 to 9 wherein said laminated material produced is a continuous non perforated material utilizing at least one said web material in the form of a plastic material film.
11. Apparatus according to any one of claims 1 to 9 further including web dispensing means to dispense at least one said web material in a direction parallel to a movement direction imparted to said laminated material by said laminated material take off mechanism.
12. Apparatus according to claim 11 wherein said laminated material is formed as a net or mesh material with a plurality of openings between the web material.
13. Apparatus according to any one of claims 1 to 12 wherein said web material wrapping means includes dispensing means for at least two said web materials simultaneously.
14. Apparatus according to any one of claims 1 to 13 wherein a speed of wrapping the or each said web material by said wrapping means is related to the speed of removal of said laminated material by said take off mechanism whereby the or each said web material supplied by said wrapping means is spirally wound in overlapping relationship in said material.
15. Apparatus according to claim 14 further including second web wrapping means arranged to apply web material cross-wise relative to the web material applied by the first mentioned material web wrapping means.

16. Apparatus according to claim 1 or claim 15 wherein the laminated material take off mechanism includes at least two spaced endless conveyors having outer conveyor runs travelling in the same direction and speed about which said plastic film wrapping means wraps said at least one plastic film web to form said laminated material.

17. Apparatus according to claim 16 further including press means to press at least an outer layer of film web material applied by said web material wrapping means against a previously applied web material layer.

18. Apparatus according to claim 16 or claim 17 wherein a web material supply means is provided to dispense at least one web material in a longitudinal direction parallel to the outer conveyor runs

19. Apparatus according to claim 18 wherein the web material supply means is configured to dispense a plurality of separate lengths of said web material in the longitudinal direction, at least some of said lengths of said web material being transversely spaced from one another.

20. Apparatus according to claim 18 wherein the web material supply means is configured to dispense a plurality of separate lengths of said web material in overlapping relation.

21. Apparatus according to claim 19 wherein the web material wrapping means wraps at least one said web material about said outer conveyor runs to form spiral windings spaced longitudinally from one another and transversely crossing said web material dispensed from the web material supply means.

22. Apparatus according to claim 21 wherein at least two separate lengths of said web material are wrapped in overlapping said spiral windings with at least one said web material dispensed in the longitudinal direction being disposed between said at least two separate lengths of said web material wrapped in overlapping said spiral windings.

23. Apparatus according to claim 21 wherein the web supply means delivers at least two separate lengths of said web material in overlapping relation whereby a said spiral winding of said web material is located between said at least two lengths of said overlapping longitudinally extending web material.
24. Apparatus according to claim 16 or claim 17 wherein the web material wrapping means includes a first supply means for supplying a first said plastic film web about said outer conveyor runs and at least one further supply means for supplying at least one further said plastic film web, the first supply means wrapping said first plastic film web at a tension level different to that of the or at least one of said further plastic film web(s).
25. Apparatus according to any one of claims 16 to 24 wherein heat sealing means is provided to heat seal all layers of the laminate material at at least longitudinally spaced positions along said laminated material.
26. Apparatus according to claim 25 wherein the heat sealing means heat seals all said layers of the laminated material along at least one longitudinally extending seal line.
27. Apparatus according to any one of claims 16 to 25 further including adjustment means to transversely adjust distance between the outer conveyor runs of said at least two spaced conveyors.
28. Apparatus according to claim 26 wherein said heat sealing means is adapted to form multiple transversely spaced said longitudinally extending seal lines.
29. Apparatus according to claim 25, claim 26 or claim 28 further including cutting means to cut said laminated material longitudinally along heat sealed regions whereby each longitudinal edge region of the laminated material so cut is heat sealed.

30. Apparatus according to any one of claims 1 to 28 further including cutting means to cut said material in a longitudinal direction.
31. Apparatus according to any one of claims 1 to 30 further including adhesive application means to apply adhesive material to at least one said web material prior to wrapping said web material d frame means.
32. Apparatus according to any one of claims 1 to 30 further including adhesive application means to apply adhesive material to said web material applied over the laminated material take off means prior to wrapping a said web material over said adhesive material.
33. A method of making laminated material from web material including wrapping at least one web material about a frame means to form said laminated material by overlaying the web material on previously applied said web material while simultaneously moving the laminated material on said frame means towards a discharge zone from said frame means.
34. A method according to claim 33 wherein said frame means includes at least two conveyors, the web material being wrapped onto said conveyors and conveyed thereby from said frame means.
35. A method according to claim 33 or claim 34 wherein at least two said plastic film webs form the web material that are simultaneously wrapped about said frame means.
36. A method according to claim 35 wherein said at least two plastic film webs are self adhesive whereby they will adhere to a previously wrapped layer.
37. A method according to any one of claims 33 to 36 wherein reinforcing web material forms at least one of said web material used to make the laminated material.

38. A method according to claim 37 wherein the reinforcing web material is of a mesh construction.
39. A method according to any one of claims 33 to 38 wherein at least one said web material is a low density polyethylene film pre-stretched to beyond its yield point to increase its length and decrease its thickness.
40. A method according to any one of claims 33 to 39 wherein adhesive is applied between layers of said web material wrapped on said frame means.
41. A method according to any one of claims 33 to 39 wherein layers of said laminated material are heat sealed together at at least longitudinally spaced locations along at least one longitudinally extending seal line.
42. A method according to claim 41 wherein a plurality of said seal lines are formed circumferentially spaced about said laminated material.
43. A method according to any one of claims 33 to 42 wherein cutting means is provided to cut the laminated material along at least one longitudinally extending cut line to thereby form a single layer of said laminated material.
44. A method according to claim 43 wherein layers of each cut edge zone of the material are heat sealed together.
45. A method of lining a canal or the like including making tubular liner material formed by spirally wound layers of at least one plastic film web with said layers adhered to one another, and laying said liner material along said canal.
46. A method according to claim 45 wherein said tubular liner material is positioned in said canal as a double thickness.
47. A method according to claim 46 wherein water flow in said canal is arranged to flow within the tubular liner material whereby a portion of said liner material overlies said water flow.

48. A method according to claim 45 wherein said tubular liner material is cut along a longitudinally extending line whereby said liner material is positioned in said canal as a single thickness.
49. A method according to any one of claims 45 to 48 wherein said tubular liner material is formed in situ and laid directly into said canal.
50. A method of lining an earth formed water retaining means including making tubular liner material formed by spirally wound layers of at least one plastic film web with said layers adhered to one another, and laying said liner material in said water retaining means.
51. A method according to claim 50 wherein said tubular liner material is cut to form a single sheet prior to being laid in said water retaining means.
52. A net or mesh material formed from a plurality of longitudinally disposed and laterally spaced webs interconnected by at least one spirally wound web formed into longitudinally spaced windings transversely disposed to said longitudinally disposed webs.
53. A net or mesh material according to claim 52 wherein a tubular form of said net or mesh material is cut longitudinally to form at least one flat sheet of said net or mesh material.
54. A dam, pond or canal liner formed by a liner material being spirally wound in overlapping layers of at least one plastic film web with said layers being adhered to one another.
55. A dam, pond or canal liner according to claim 54 wherein a tubular form of said liner is cut longitudinally to form at least one flat sheet.
56. A dam, pond or canal liner according to claim 54 or claim 55 further including one or more webs extending in a longitudinal direction transverse to said spirally wound overlapping layers.

57. A dam, pond or canal liner according to claim 56 wherein a plurality of said webs extending in the longitudinal direction are provided spaced from one another.
58. A dam, pond or canal liner according to claim 56 wherein a plurality of said webs extending in the longitudinal direction are provided and overlap one another.
59. A laminate film material, the laminate film material being formed from at least one plastic material web wound in overlapping spiral layers with said layers being adhered to one another, the thus formed tubular structure being cut longitudinally to form at least one flat sheet.
60. A laminate film material according to claim 59 further including at least one longitudinally extending plastic material web positioned such that the or each said spirally wound layer is disposed transverse to the or each said longitudinally extending plastic material web.
61. A laminated material formed by at least one first film web extending in a first direction and at least one second film web spirally wound in a plurality of windings transversely crossing said at least one first film web with each said film web being at least partially adhered to another of said film webs to form said laminated material.
62. A laminated material according to claim 61 wherein a plurality of said first film webs are provided.
63. A laminated material according to claim 62 wherein a plurality of said second film webs are provided.
64. A laminated material according to any one of claims 61 to 63 wherein the first and second film webs are of plastic material that adhere to each other.

65. A laminated material according to any one of claims 61 to 64 wherein a tubular form of said laminate film is cut longitudinally to form at least one flat sheet.

66. A laminated film material being formed from at least one plastic material web wound in overlapping spiral layers with said layers being adhered to one another to form a tubular structure, the thus formed tubular structure being cut longitudinally to form at least one flat sheet.

67. A laminated material according to claim 66 further including at least one internal pocket adapted to receive a flowable substance to act as a weight.

68. A cover arrangement formed from a laminated film material, the laminated film material being formed from at least one plastic material web wound in overlapping spiral layers with said layers being adhered to one another, said cover arrangement further including at least one internal pocket adapted to receive a flowable substance to act as a weight.

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